

## 12 NetWorks Ghana End of Project Report

### 12.1 Summary

The NetWorks project operated in Ghana from 2012 to 2014. It made substantial contributions to improve the distribution of insecticide-treated nets (ITNs) by providing support, facilitation, and capacity building services around the concept of continuous distribution (CD). In partnership with the Ghana Health Service (GHS) and the Ghana Education Service (GES), NetWorks facilitated the development of a continuous distribution strategy and tested four CD channels: through antenatal clinics (ANCs), Child Welfare Clinics (CWCs), schools, and subsidized private sector sales. NetWorks played an integral support role in scaling up the CD system at the national level. These efforts were designed to promote continuous coverage and use of ITNs across the 10 regions of Ghana.

Distribution pilot programs began with ANCs, CWCs, and schools in the Eastern Region in 2012 and 2013. Those pilot programs demonstrated the feasibility of using these channels to distribute ITNs and highlighted the value of using a mix of distribution channels to achieve coverage and equity in distribution.



Building on key lessons that had been learned from the CD pilot, NetWorks and its partners took the CD approach nationwide in a coordinated effort. The Government of Ghana played an integral role in developing the strategy and implementing it with coordination at the national, regional, district, and circuit levels of the health and education systems. NetWorks supported creative community outreach, mobilization, and social and behavior change communication (SBCC) as key components of the expansion.

NetWorks carried out the Ghana ITN e-coupon pilot from October 2013 to May 2014 with funding support from USAID's Africa Bureau. The e-coupon was designed to demonstrate that a technological platform could support private sector re-involvement in ITN distribution through a market-based system. The pilot achieved its main objectives, demonstrating that e-coupon issue and redemption could be implemented in Ghana. The pilot successfully demonstrated that various levels of subsidies could be offered to different segments of the population. USAID's investment in this innovative pilot prompted the United Kingdom's Department for International Development to fund the scale up of the e-coupon program in Ghana at 5.5 million GBP (8.8 million USD) over 3 years (2014–2016).

Beyond successes in sustaining ITN coverage in Ghana through a mix of CD channels, NetWorks explored outdoor sleeping habits and other nighttime activities in the Northern Region, where malaria prevalence is persistently high. The study highlighted unique challenges to net use and underscored the need for complementary outdoor malaria prevention strategies.

## 12.2 Background

Prior to 2010, Ghana's net distribution strategy primarily targeted vulnerable groups (pregnant women and children under the age of five) through routine channels—ANCs and immunization (EPI) clinics—and in a few instances through nongovernmental organizations. From 2010–2012, Ghana's National Malaria Control Program (NMCP) and its partners achieved universal coverage with long-lasting insecticidal nets (LLINs) through a door-to-door distribution and hang-up



campaign. During this time, over 12 million nets were distributed nationwide.

As the national priority shifted towards universal coverage of ITN, the NMCP sought a strategy to sustain the gains achieved through mass distribution. An important part of the process for developing that strategy was a study trip to Nairobi in June 2011, funded by USAID's Africa Bureau, for key stakeholders to learn firsthand about continuous distribution of ITNs in Kenya. NetWorks provided facilitation support during the trip, conducting a two-day workshop on continuous distribution planning tools, including the NetCALC tool. The workshop resulted in a draft continuous distribution strategy for Ghana.

In 2012, NetWorks began collaborating with the Ghana NMCP and its partners to refine, pilot and scale up the CD strategy. This report will highlight activities carried out under the NetWorks project in Ghana from 2012 through 2014, including challenges and successes.

## 12.3 Continuous Distribution Pilots

Following the 2010–2012 mass campaign of net distribution, the NMCP's objective was to distribute nets through a continuous system via three channels in all 10 regions of Ghana. Before any changes to the national policy could be made, the channels needed to be tested. The Eastern Region was the first to be fully covered by the door-to-door mass ITN campaign, in December 2010, and was therefore well placed to serve as the pilot region for CD activities that NetWorks designed and implemented. The project used health facility and school-based distribution channels in the region at various periods from October 2012 through November 2013. NetWorks carried out the e-coupon pilot in Eastern Region's capital, Koforidua, from October 2013 to May 2014.

Planning for the CD pilot in the Eastern Region required NetWorks to coordinate at the national-level with two main governmental agencies, GHS and NMCP, and the GES School Health Education Program (SHEP), and their regional, districts, circuits/sub-districts and health facility or primary school contacts at the community level. National leadership by NMCP and SHEP personnel unit was critical.

### **12.3.1 Pilot of school-based ITN distribution**

The primary school CD pilot targeted students in Class 2 and Class 6 in Eastern Region and was carried out in October 2012. ITNs were also distributed during the pilot period to students in Class 4 and Class 5 in November 2013 as part of the nationwide school distribution effort. A total of 150,000 ITNs were distributed to 2,682 public and private primary schools in Eastern Region during this time.

ITN distribution through schools involved compilation of school enrollment data for the targeted classes, orientation of 26 district SHEP coordinators and 180 circuit supervisors on how to distribute nets, and how to meet reporting requirements. Calculations of the number of nets needed in each district were made on the basis of aggregated school enrollment data. With these data, ITNs were transported to the district education stores for onward transportation to schools within each circuit.

While the pilot demonstrated the feasibility of ITN distribution through schools, it also revealed challenges associated with reporting timelines. Following the distributions, delays were observed for reports moving from schools up to circuit, district, regional and national levels. Further, copies of reports were often not kept at the schools, making quality checks difficult.

### **12.3.2 Pilot of health facility-based ITN distribution**

The health facility-based CD pilot ran between October 2012 and November 2013. It targeted public and private health facilities that offered antenatal and child welfare/EPI services in all 26 districts in the Eastern Region. Every pregnant woman who visited an ANC for the first time was entitled to receive an LLIN. She was also given information about the effects of malaria in pregnancy and the need for proper use of nets. At EPI clinics, every child aged 18–24 months receiving measles II booster dose was given a net. In summary, 114,000 ITNs were allocated across all health facilities in the 26 districts.

The implementation of health facility based CD included revision of the Maternal Record Book to include LLIN given to the pregnant woman, training of the health workers offering service at the Antenatal Clinic, and the recording in the Antenatal Clinic Register.

Despite the success of the channel in getting nets into households, challenges were observed. Poor coordination among central, regional, and district personnel, supply chain bottlenecks, and poor documentation as evidenced in the District Health Information Management System



were noted when ITNs were distributed to health facilities. These challenges make it difficult to assess exactly what proportion of pregnant women or children received a net at their ANC or CWC visits.

### 12.3.3 E-coupon pilot

The e-coupon pilot ran between October 2013 and May 2014 in Koforidua, the capital of Eastern Region. The e-coupon system offered discounts to pregnant women, employees of participating businesses, schoolchildren in Koforidua, and the general public when they purchased a net. The pilot adapted the mobile phone-based platform developed by Mennonite Economic Development Associates (MEDA) for the Tanzania National Voucher Scheme. It offered subsidies from multiple donors, variable amounts of subsidy for specific groups of people, and product variety.

The rationale for the e-coupon pilot was to contribute to maintaining universal coverage following mass net distribution campaigns by stimulating a sustainable retail supply chain, placing a subsidy in the hands of consumers, drawing demand into retail shops and allowing inventory to be available to everyone (not just coupon recipients), giving choice to consumers, and stimulating positive competition among ITN brands.



A total of 6,565 coupons were issued during the pilot, with just over half redeemed by beneficiaries. Redemption rates varied by target group and subsidy level. The highest redemption rate was observed among secondary school students, while the lowest redemption rates were for coupons issued to the general public through promotional events.

The pilot demonstrated that e-coupon issue and redemption technology could be implemented in Ghana. The e-coupon pilot was successful in reaching different population groups, including Koforidua residents, employees, and school children. The pilot also demonstrated that it is possible to deliver various levels of subsidy to various segments of the population.

While pilot objectives were achieved, issues were also identified. The pilot did not engage the National Malaria Control Program (NMCP) fully at the beginning of the pilot, and the program would have benefited from additional meetings with key stakeholders to gain local understanding and ownership. This issue was rectified later in the pilot and was identified as a key element necessary for success of the program.

Customers also reported that having to go to two separate locations to receive and redeem a coupon could be cumbersome. Self-issuance was identified as a potential strategy to reduce the need for separate issuers and to make the issuance process more convenient for those receiving e-Coupons, but was not fully rolled out during the pilot. Cell network 'downtimes' also delayed or impeded issuing and redemption of codes in some cases.

Finally, cost effectiveness could not be evaluated due to the small-scale, exploratory nature of the pilot and large sunk costs associated with start-up.

### **12.3.4 Nationwide scale up**

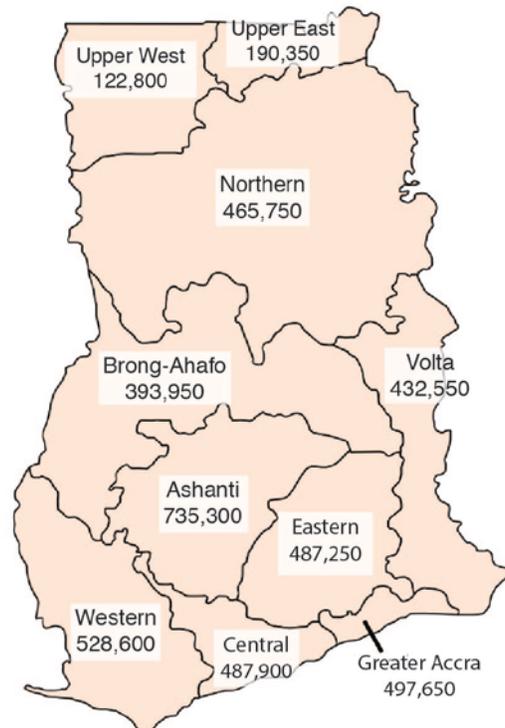
#### *12.3.4.1 Health facility and school-based distribution*

Nationwide rollout of CD required establishing mechanisms to coordinate and communicate among implementers. Staff from NetWorks, NMCP, and the USAID/DELIVER project began holding regional meetings in January 2013 to bring together regional health, education, and coordinating council stakeholders to discuss timelines, estimates of ITN numbers, and orientations for ANC and EPI health workers. NetWorks also collaborated with the Focus Region Health Project in the start-up stakeholders' meeting in Central and Western regions.

In addition to collaboration with the NMCP, NetWorks organized CD information meetings approximately quarterly in three to four regions. These meetings brought together regional health services managers to discuss pilot implementation.

Through nationwide scale-up of continuous distribution in 2013-2014, a total of 4,342,100 nets were distributed through health facilities and schools (Figure 5).

**Figure 5: Total ITNs distributed in Ghana, by region, for school and health facility distribution**



#### 12.3.4.2 Improvements made between pilot and national scale up

In scaling up, steps were taken to address the challenges identified in the Eastern Region pilot. These improvements are outlined in the following section.

##### **Coordination**

NetWorks, together with NMCP and regional health education directorates, organized regional and district monitoring and review meetings to complement the planning meetings with stakeholders. Regional review meetings offered a forum for CD implementers to share their experiences and lessons they had learned.

##### **Documentation**

NetWorks revised existing record-keeping books and forms. ANC and EPI staff members were trained on site and closer to the time when nets were delivered. Using existing record-keeping forms, modified where needed, gave staff familiar methods to use. A change in the timing and location of training led to better retention of training and adherence to record-keeping.

##### **Supply chain bottlenecks**

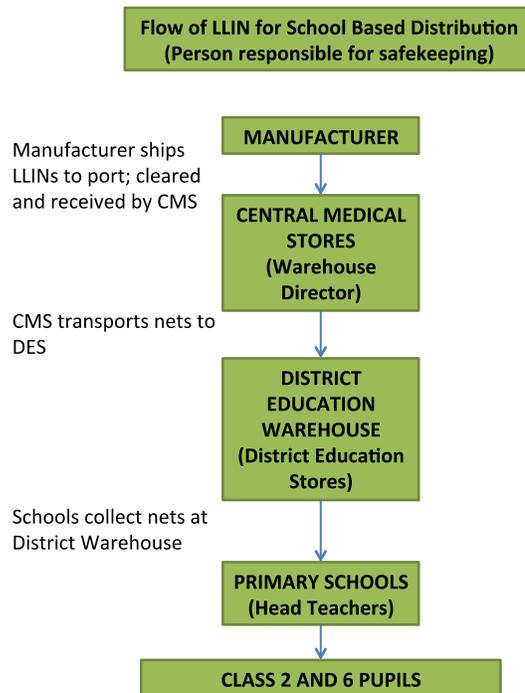
Health workers and school officers had a clearer understanding of their roles. Stock-outs were minimized because health workers were better aware of minimum and maximum stock levels and re-order requirements. District health and education directorate staff took on leadership roles and found solutions to supply chain issues as they arose.

### Logistics management

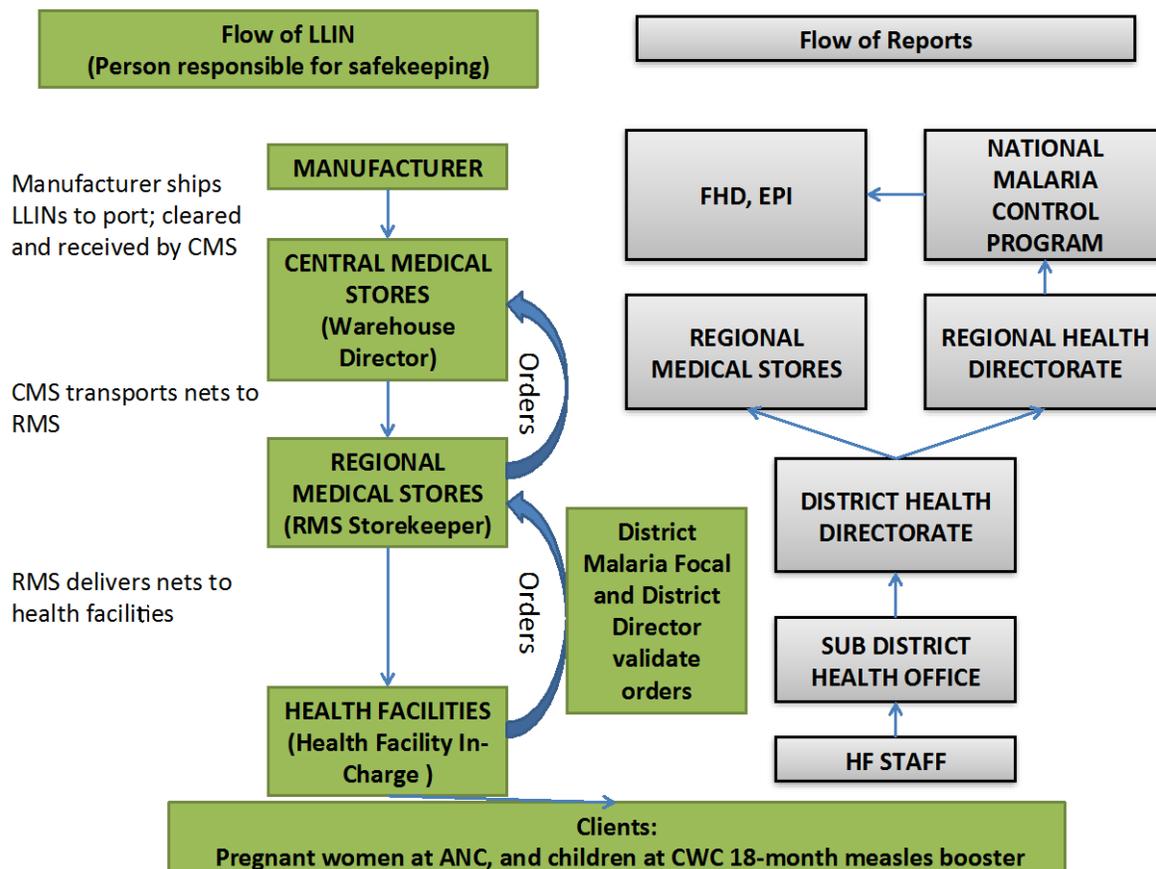
ITN logistics management was executed primarily by the USAID|DELIVER project with NetWorks playing a critical role in ensuring that the right quantities of ITNs were estimated for each level—national, regional, district, and facility/school.

The charts below show the flow of ITNs from the central level to schools and health facilities for distribution to target beneficiaries.

**Figure 6: School distribution: flow of ITN from port to pupils**



**Figure 7: Health facility distribution: flow of ITN from port to clients**



**Coordination and supervision**

Monitoring and coordination involved national, regional, and district officials who made supportive supervision visits to all health facilities one month after nets had been distributed. Subsequent monitoring was carried out by regional and district officers as a step toward ensuring ownership of the CD process. Monitoring reports were discussed on a quarterly basis.

Monitoring the school distribution program was similarly conducted by national, regional, district, and circuit level officers during each round of distribution. The NMCP, with the facilitation support of SHEP, NetWorks, USAID |DELIVER and the regional and district directorates of education and health, actively coordinated the entire process.

**Capacity building**

Sustaining a CD framework depends on a well-functioning supply chain that guarantees ITN commodity security and the active involvement of all stakeholders. NMCP, SHEP, and health and education regional and district directorates were at the forefront of ITN distribution from its inception, with NetWorks and other USAID projects playing a facilitation role. NetWorks established a set of standard operating procedures in 2014 to facilitate future implementation of the CD framework by NMCP and its implementing partners, regardless of funding source.

## 12.4 BCC Activities

Community mobilization was important for promoting awareness about how to obtain, use, and care for a net. Existing social support systems were harnessed to promote and ensure the use of ITNs every night, year round.

BCC messages were distributed through ANC visits, CWC visits and primary schools. Health facilities offered information to pregnant women and mothers/caregivers who took their children for a measles booster vaccination. In routine house-to-house visits, community health nurses and community health educators re-emphasized the need to use ITNs consistently. Schools distributed malaria prevention information through drama, music, dance, drum language, poetry, drawings, and paintings. Information, education and communication (IEC) materials that discussed malaria prevention were also distributed at weekly school assemblies, during class lessons, and at PTA meetings.

Community mobilization had four components. First was to encourage stakeholders to accept, support, and promote CD. Next was to ensure that beneficiaries understood the process and how they could obtain an ITN. Third, that beneficiaries, having picked up their nets, used them continuously and consistently. Fourth was to ensure that nets were properly taken care of to achieve their maximum benefit.

### 12.4.1 School and health facility activities

Using the schools and health facilities as conduits for community mobilization, NetWorks reached out to target groups in Ghana with messages on the CD concept and on ITN use and care. Medical practitioners, clinic staff, school health education coordinators and other regional and district representatives were given orientations on this and were then responsible for disseminating it to their target groups (i.e., pregnant women, caregivers, primary school students, other community members). The campaign to promote awareness of CD and the benefit of net use was carried into more than 24,000 schools and 4,342 health facilities. A total of 20,303 people, split equally between men and women, received training in how to communicate about malaria, malaria prevention, and ITN use and care using materials that included key facts about ITNs, briefs for discussion, and flip charts. Of these twenty thousand people, one fifth were health care workers, while the remaining four fifths were community leaders and community members.

In addition to the activities within schools and health facilities, school outreach activities formed a vital component of the NetWorks community mobilization effort in Ghana. Short drama scripts were developed and distributed to 16,007 primary schools to serve as aids for outreach performances. Twenty regional SHEP/cultural officers received an orientation on the use of drama and other forms of art to promote information on how malaria spreads and how ITNs can prevent it. Those regional officers then trained 374 district officers who in turn trained more than 16,000 school-based SHEP and cultural coordinators. Some schools expanded their performances from the drama scripts and still others developed their own scenarios around malaria prevention and care of ITNs. Other modes of art such as poetry, music, drawing and paintings, were also used in outreach activities. Activities were shared with neighboring schools, market centers, lorry stations, hospitals, churches, mosques, district assemblies, community centers and chiefs' palaces.

### 12.4.2 Community activities

In the Upper East, Upper West, Northern and Brong Ahafo regions, community opinion leaders and representatives of nongovernmental and faith-based organizations served as vital outreach representatives to create awareness about distribution occurring in health and school facilities. It enabled these groups to appreciate, understand, support and promote CD in their communities.

Participants were told about CD modalities, target groups, and why they were selected. Participants received information on malaria and its transmission, and the benefits of ITNs, including proper hanging and care. Individuals in these groups then further disseminated the information to their communities. Two community durbars on malaria were organized for three communities, targeting chiefs and community members. The events included dramas performed by local primary schools; total of 355 community members participated. In addition, through sensitization sessions, a total of 40,536 community members in 510 communities in 30 districts were sensitized on the use and care of LLINs and malaria. District SHEP Coordinators and Culture Officers were trained in the use of drama and malaria flip charts as tools for increasing knowledge on malaria, LLIN use and care. By the close of the second quarter of the 2014 fiscal year, all districts in Upper East, Upper West, Northern, and Brong Ahafo completed their trainings.

**Malaria Prevention Advocacy Session with School Management Committees/Parent Teacher Associations:** Sensitization sessions were organized in two districts to educate SMC/PTA members on the CD strategy and basic facts about malaria using the malaria flip chart. A total of 266 parents were reached.

**Drama and Quiz Competitions:** To generate interest among children in community outreach programs through Information, Education and Communication (IE&C) activities, quiz and drama competitions were organized in 55 districts across Northern, Brong Ahafo, Upper East and Upper West regions. All districts in the Upper East and Upper West regions, 16 districts in Northern region, and 15 districts in Brong Ahafo region participated in the competitions. The competition was opened to three schools in each district, including both public and private schools. Ten children (two for quiz and eight for drama) participated in the activity. A total of 159 public and private schools participated directly in the competition.

**Figure 8: Sensitization of community opinion leaders on continuous distribution**



### **12.4.3 Media campaigns**

A media campaign formed a vital part of the NetWorks community mobilization effort. The combination of national television and local radio campaigns included radio announcements, jingles, long-play messages, and on-air discussions.

A total of 779 television spots and 2,958 radio spots were broadcast on 17 local community media stations in multiple local languages from January 2013 through December 2014. Two television

spots (Ntomtom Po Soro and Game Plan) were broadcast nationally on eight stations. Two spots focused on the care and use of ITNs and dispelled some of the myths that prevented ITN use were broadcast on two major television stations, one in English and one in a local language. To further bolster the campaign, staff from NMCP participated in radio and television talk and phone-in shows with the general public.

## 12.5 Challenges in CD Implementation and ITN Distribution in Urban Settings

Implementing CD in urban areas presented some challenges. On-site orientation for ANC and CWC staff was a challenge because they have heavy workloads, and it was difficult to coordinate schedules among training facilitators and clinic staff. Compounding this issue was the amount of time facilitators needed to travel to present orientation sessions.

Implementing the CD framework in schools in urban areas also had challenges. The large number of schools and lack of data on them at the central level made planning a challenge, but the CD project gave managers in GES an incentive to update their database. Some urban schools showed no interest in outreach activities. Teachers attributed their inability to participate for any number of reasons, including a heavy school curriculum, lack of motivation or interest in activities, scheduling conflicts between planned school activities and community mobilization activities, and lack of supervision by SHEP coordinators due to insufficient funds or transportation. Finally, differences in community structure between cities and rural areas made it difficult to effectively organize community outreach to educate community members.

## 12.6 Research

Research in the form of surveys and studies about project implementation helps ensure that an intervention can be accurately measured for efficacy and provides a baseline for improvement. NetWorks therefore incorporated baseline and follow-up surveys into the design of the project to support an evaluation of the Eastern Region CD pilots, in addition to a process evaluation. NetWorks also used a qualitative study design in northern Ghana to document outdoor sleeping and other outdoor nighttime activities that contribute to potential malaria exposure.

### 12.6.1 Eastern Region continuous distribution pilots

#### 12.6.1.1 *Methods*

In the Eastern Region, the NMCP and implementing partners supported mass distributions of ITNs between December 2010 and April 2011. CD activities began in October 2012. The outcome was evaluated through cross sectional surveys, conducted at baseline in April 2012, 12-16 months after the campaign, and at endline in December 2013, after one year of CD implementation. For each survey, a representative sample of 900 households was selected using a two-stage cluster sampling design. Household heads were interviewed using a structured questionnaire.

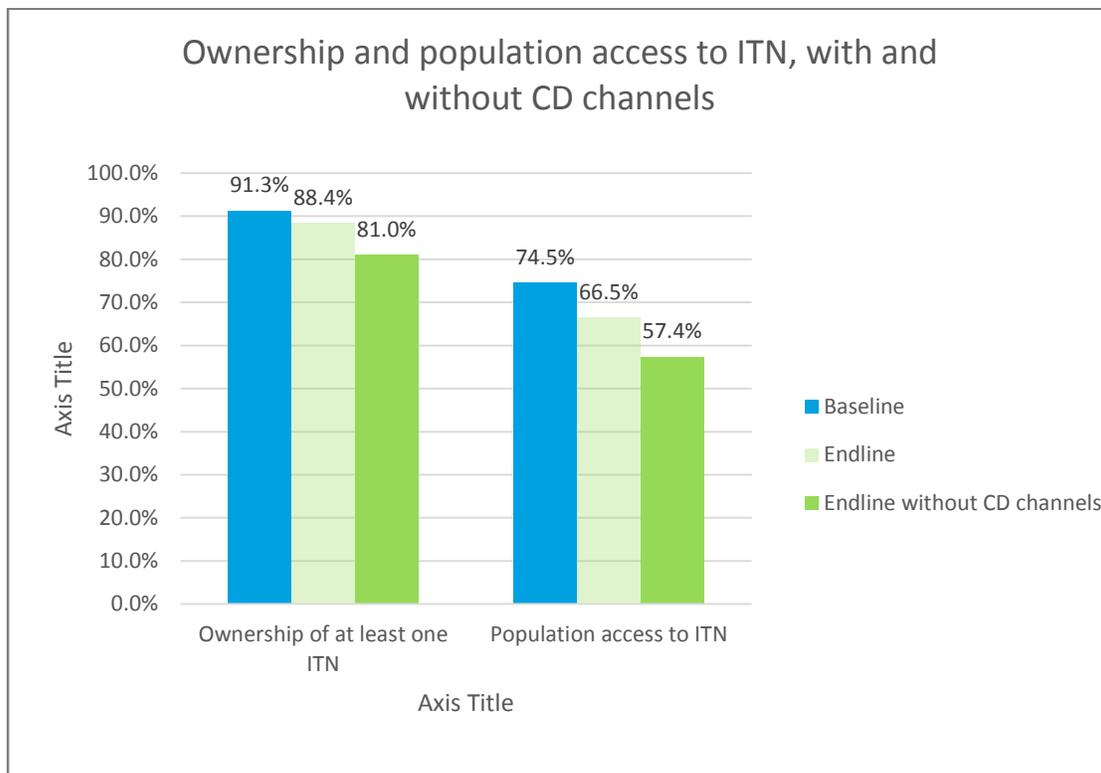
#### 12.6.1.2 *Key findings*

Full results of the pilot are available in the [Final Survey Report for the Eastern Region Continuous Distribution Pilot](#). Overall, household ownership of at least one ITN was maintained at around 90% (91% at baseline and 88% at endline, 18 months later). To assess what ITN ownership would have been without the CD activities, NetWorks calculated ownership by excluding nets obtained through CD channels. Excluding nets received through CD channels, ownership of any ITN would have been 81.0%. The overall proportion of the population with access to an ITN within their household decreased from 74.5% at baseline to 66.5% and would have been 57.4% if one excluded the nets received through the CD channels (Figure 10). Moreover, households tended not to

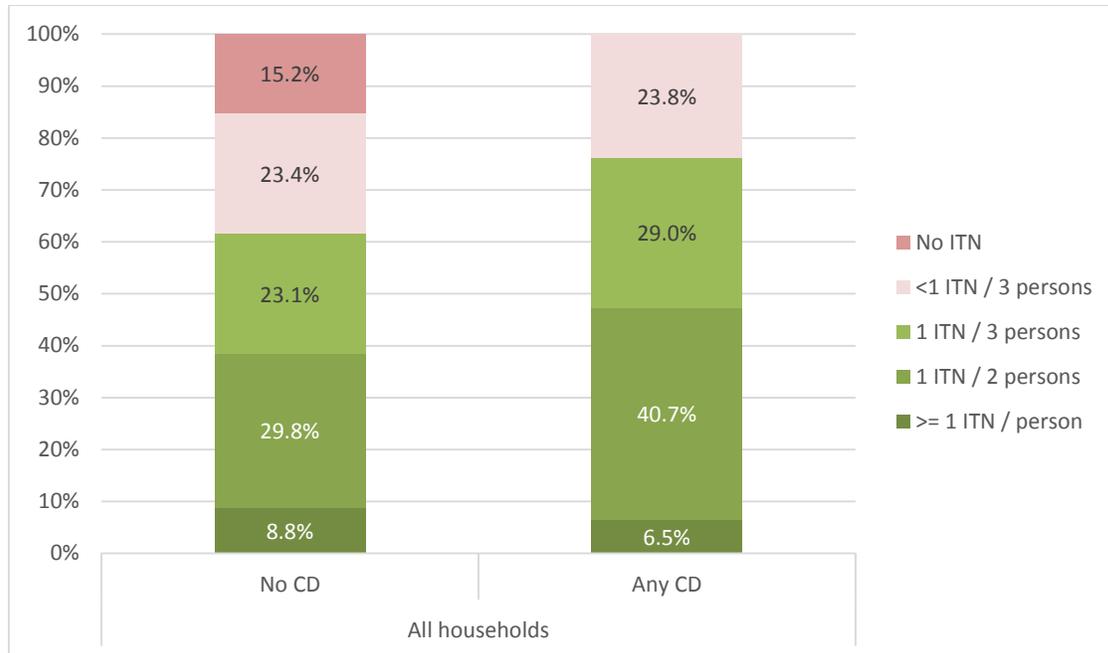
receive nets from multiple CD channels, but rather through either ANC, EPI, or the school channel. By targeting households at different 'lifecycle' points, oversupplying the same households with nets was avoided. Figure 9: ITN ownership and population access to ITN in Ghana, before and after the CD pilot. While the number of nets distributed was insufficient to boost universal coverage, both ownership and access would have been significantly lower without the contribution of the ITNs from the CD channels. illustrates that households that obtained nets through the CD channels were able to fill gaps in net access - a greater proportion of these households had almost enough (1 ITN / 3 persons) or enough nets (1 ITN / 2 persons) than did households that did not obtain nets through the CD channels.

Three primary conclusions may be drawn from this study. The CD effort made a significant contribution to household ownership, however, the number of ITNs distributed was insufficient to increase universal coverage (one net for every two people in the household). Continuous distribution of ITNs through primary schools and health clinics did not quite achieve universal coverage after one year of implementation due to delays in initiating continuous distribution following the mass campaign. The number of ITN distributed through the CD channels was insufficient to address attrition and loss of ITN that occurred during the nearly two-year gap. These results show, however, that CD implementation can sustain universal coverage if implemented well. Distribution of ITNs through a comprehensive system that uses a mix of channels is the best way to achieve equity in household coverage.

**Figure 9: ITN ownership and population access to ITN in Ghana, before and after the CD pilot. While the number of nets distributed was insufficient to boost universal coverage, both ownership and access would have been significantly lower without the contribution of the ITNs from the CD channels.**



**Figure 10: Household ITN supply comparing households that received campaign nets and CD nets. Households filled gaps by obtaining CD nets. At the same time, the proportion of households that had at least 1 ITN per person did not increase (darkest green), indicating CD did not oversupply the same households.**



## 12.6.2 Outdoor sleeping study

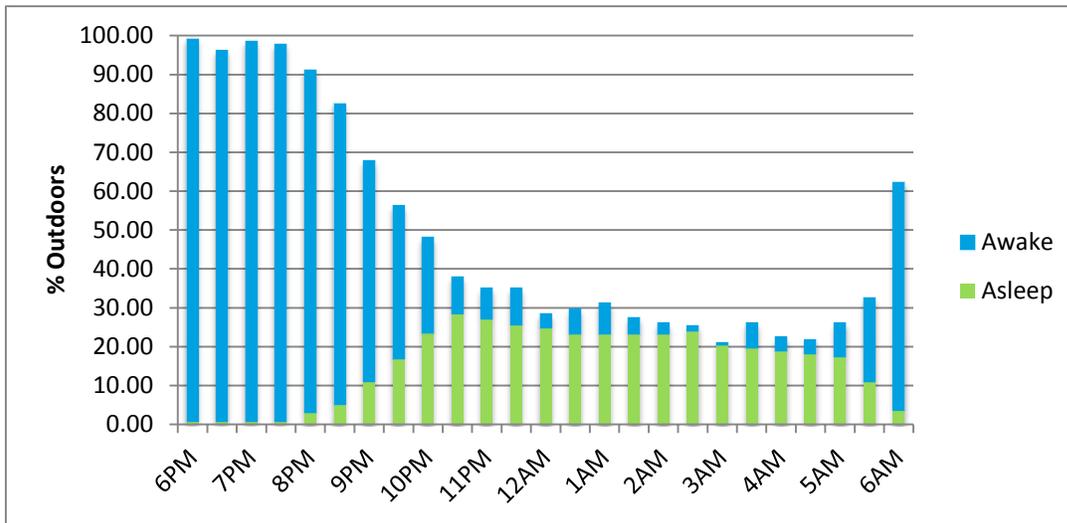
### 12.6.2.1 Methods

During the late dry-season months of February and March 2014, NetWorks study team members carried out continuous household observations from dusk to dawn in two villages, one in Northern Region and one in Upper West Region. In-depth interviews with health workers and community residents supplemented observational findings. Study team members observed 182 individuals across 24 households, 12 households per site. Between the two sites, they interviewed 14 health workers, 6 community health volunteers and 28 community residents.

### 12.6.2.2 Key findings

A large percentage of participants were observed to be outdoors throughout the night.

**Figure 11: Percentage of observation participants observed outdoors, either awake or asleep, half-hourly**



*Nighttime activities*

In early evening, nearly all study participants were observed to be outdoors and active. From 18:00 to 23:00 hours, socializing, night school, household chores, and small-scale economic activities were common. All-night funerals, held outdoors and attended by large numbers of community members, were commonly reported and observed.

*Outdoor sleeping*

Outdoor sleeping was frequently documented at both study sites, with 42% of the study population sleeping outdoors at some time during the night.

**Figure 12: Household members sleeping in the open-air courtyard of their compound**



#### *Net use*

In-depth interview participants reported they did not commonly use nets during the dry season, and observed use of nets was low. Nets were observed to be stored, hung over sleeping spaces but not used, used for alternative purposes, or still in packaging material. Net use was low both indoors and outdoors throughout the night, with the highest net use observed between 1:00 and 5:00 am (10%). Although multiple participants noted that they used nets outdoors, outdoor net use was rarely observed.

#### *Net access*

Participants reported that not every member of the household had access to a net. Gaps in net coverage and variation in net access was observed across households, with some households not having any nets at all. Among observation participants, approximately two-thirds of observation participants had access to a net at the household level.

#### *Barriers to net use*

Reported barriers to net use during the dry season included heat, perceived lower risk of contracting malaria, inconvenience of untying and retying the net when moving from an indoor sleeping space to an outdoor space, difficulty hanging the net outdoors, and outdoor night-time activities.

#### *Next steps*

The indicator "slept under a net last night" does not capture the full night's sleeping habits because it is increasingly clear that people may spend only part of the night sleeping under a net, particularly in certain regions. SBCC strategies need to include better messages to promote year-round ITN use and additional malaria prevention strategies when net use is not feasible, in hot weather, and for large-scale, outdoor events such as funerals. These findings suggest that indoor-

oriented control measures such as use of an ITN and indoor residual spraying may be insufficient to eliminate malaria, especially given the observed low use of nets. Development and evaluation of complementary outdoor control strategies should be prioritized.

## **12.7 Key Contributions, Challenges and Opportunities**

Through effective partnerships and collaboration, the NetWorks project demonstrated the effectiveness of four key CD channels in Ghana: ANC clinics, EPI clinics, schools, and the private sector.

A key challenge to demonstrating the effectiveness of CD in sustaining ITN coverage was the large gap in time between the mass campaign and initiation of the CD concept. CD activities began nearly two years after the mass campaign. Moving forward, it will be imperative to initiate CD within 12 months following a mass distribution campaign, or ideally, to perpetually maintain CD channels.

Continued operations research to improve CD and research on the cost-effectiveness of individual channels and combinations of channels are also recommended. Looking forward, it will be important to consider a total market approach for delivering LLINs through the public and private sectors.

### **School Distributions**

In schools, NetWorks helped develop an effective quantification process to ensure the right number of nets was delivered. Opportunities remain for improving the timing of school distribution and the reporting processes. Ideally school distributions will be planned for the middle of the term, rather than at the end, to ensure there is time for reports to be written, duplicated, and submitted before a long break in order to prevent delays. Duplicate forms should also be kept at schools for quality assurance.

### **Health Facility Distributions**

NetWorks improved documentation at the health facility level by updating the ANC and EPI forms and record-books with columns to record net distribution information. Challenges remain throughout the distribution supply chain. Orientation for new health care workers and reorientation of existing health workers is important to improve documentation and reporting. These issues also underscored the need for a national level monitoring team to oversee district-level monitoring teams and to ensure health-facility implementation was being carried out as planned.

### **Private Sector Distribution**

NetWorks demonstrated the potential value of using an e-coupon technology in private sector distribution of ITN. There remains tremendous opportunity to re-establish a viable private-sector market in ITNs in Ghana and beyond. A sustainable private sector market in LLINs provides long-lasting assurance of availability, and thus of households' ability to protect their family members from malaria infection into the future.

Moving forward, all private sector distributor partners should be included in the design of the program scale-up and price setting to ensure that they are fully on-board and willing to participate in program implementation. Demand generation remains an important consideration for private sector distribution. Additional market analysis should be carried out to quantify demand prior to design of specific program activities. Further, e-coupons should be issued in a targeted way that demonstrates value, and requires some action from the redeemer. For that reason, distribution through large, public promotions is not recommended. Finally, the roll-out of the self-issue option

could alleviate some of the burden on the issuers, as customers will be able to request and obtain a coupon through sending an SMS on their mobile phone which they can then take directly to a nearby participating retailer.

### **ITN Use**

It will be important to look beyond distribution to ensuring optimal ITN use. Improved net use through the use of community-based initiatives and peer educators could be of use. An important first step for addressing outdoor transmission will be to measure the risk associated with nighttime outdoor activities. This will provide the opportunity to identify settings and activities representing the greatest risk for malaria transmission in order to better target complimentary outdoor prevention strategies.

## **12.8 Acknowledgments**

This work was made possible by collaboration between the NetWorks project and the Ghanaian government, including GHS, NMCP, GES, and SHEP, as well as partnerships with Malaria Consortium, Mennonite Economic Development Associates, and the USAID |DELIVER project. Funding was provided by the President's Malaria Initiative.

## 12.9 NetWorks Ghana Performance Monitoring Plan

NetWorks Ghana: Performance Monitoring Plan: Last Updated September 30, 2014

Reporting Period for Year One - 1 October 2012 to 30 September 2013

Reporting Period for Year Two - 1 October 2013 to 30 September 2014

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
<b>Malaria Prevention</b>							
1	Proportion of households with at least one ITN	National: 48.9% Eastern: 78.2% <sup>m</sup> /90.2% <sup>e</sup> ; Volta: 85.4% Northern: 67.2% Ashanti: 39.8% Brong Ahafo: 53.4% Upper East: 51.8% Upper West: 60.7% Central: 32.1% Greater Accra: 25.5% Western: 42.7%	National: 90% Eastern: 90%; Volta: 90% Northern: 90% Ashanti: 90% Brong Ahafo: 90% Upper East: 90% Upper West: 90% Central: 90% Greater Accra: 90% Western: 90%	National: 61.5% Eastern: 55.6%; Volta: 63.7% Northern: 88.7% Ashanti: 42.2% Brong Ahafo: 72% Upper East: 85.7% Upper West: 96.9% Central: 55.9% Greater Accra: 70.6% Western: 33%	National: 90% Eastern: 90%; Volta: 90% Northern: 90% Ashanti: 90% Brong Ahafo: 90% Upper East: 90% Upper West: 90% Central: 90% Greater Accra: 90% Western: 90%	Eastern: 90.1%	Data for the Reporting Period was drawn from the Eastern Region CD Pilot Endline Survey. The National Level DHS 2014 is yet to be conducted.
1.1	Proportion of households with at least one ITN (Urban)	National: 39.1%	National: 85% Eastern: 85%; Volta: 85% Northern: 85%	National 59.1%	National: 90% Eastern: 90%; Volta: 90% Northern: 90%	Eastern: 85.4%	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
1.2	Proportion of households with at least one ITN (Rural)	National: 60.1%	National: 90% Eastern: 90%; Volta: 90% Northern: 90%	National: 64.4%	National: 90% Eastern: 90%; Volta: 90% Northern: 90% Ashanti: 90% Brong Ahafo: 90% Upper East: 90% Upper West: 90% Central: 90% Greater Accra: 90% Western: 90%	Eastern: 93.9%	
1.3	Proportion of households with at least one ITN (Lowest Wealth Quintile)	National: 65.9%	National: 90% Eastern: 90%; Volta: 95% Northern: 90%	National: 58% Eastern: 46.5%; Volta: 30% Northern: 75%	National: 90% Eastern: 90%; Volta: 90% Northern: 90% Ashanti: 90% Brong Ahafo: 90% Upper East: 90% Upper West: 90% Central: 90% Greater Accra: 90% Western: 90%	Eastern: 91.1%	
1.4	Proportion of households with at least one ITN (Second Wealth Quintile)	National: 58.5%	National: 90% Eastern: 90%; Volta: 90% Northern: 90%	National: 65.4% Eastern: 90%; Volta: 95% Northern: 90%	National: 90% Eastern: 90%; Volta: 90% Northern: 90% Ashanti: 90% Brong Ahafo: 90% Upper East: 90% Upper West: 90% Central: 90% Greater Accra: 90% Western: 90%	Eastern: 89.3%	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
1.5	Proportion of households with at least one ITN (Middle Wealth Quintile)	National: 52.2%	National: 85% Eastern: 85%; Volta: 85% Northern: 80%	National: 60.4% Eastern: 90%; Volta: 95% Northern: 90%	National: 90% Eastern: 90%; Volta: 90% Northern: 90% Ashanti: 90% Brong Ahafo: 90% Upper East: 90% Upper West: 90% Central: 90% Greater Accra: 90% Western: 90%	Eastern: 91.1%	
1.6	Proportion of households with at least one ITN (Fourth Wealth Quintile)	National: 41.9%	National: 85% Eastern: 85%; Volta: 85% Northern: 80%	National: 58.2% Eastern: 77.3%; Volta: 59.1% Northern: 88.5%	National: 90% Eastern: 90%; Volta: 90% Northern: 90% Ashanti: 90% Brong Ahafo: 90% Upper East: 90% Upper West: 90% Central: 90% Greater Accra: 90% Western: 90%	Eastern: 88.9%	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
1.7	Proportion of households with at least one ITN (Highest Wealth Quintile)	National: 35.2%	National: 75% Eastern: 75%; Volta: 80% Northern: 70%	National: 73.5% Eastern: **%; Volta: 66.7% Northern: 75%	National: 90% Eastern: 90%; Volta: 90% Northern: 90% Ashanti: 90% Brong Ahafo: 90% Upper East: 90% Upper West: 90% Central: 90% Greater Accra: 90% Western: 90%	Eastern: 90%	
2	Proportion of households with at least one ITN for <b>every</b> two persons	National: 25.5% Eastern: 57.3% <sup>m</sup> /49.8%; Volta: 65.3% Northern: 19.3% Ashanti: 16.4% Brong Ahafo: 22.2% Upper East: 18.0% Upper West: 19.7% Central: 12.8% Greater Accra: 10.4% Western: 21.7%	National: 75% Eastern: 75%; Volta: 75% Northern: 75% Ashanti: 75% Brong Ahafo: 75% Upper East: 75% Upper West: 75% Central: 75% Greater Accra: 75% Western: 75%	National: 45.2% Eastern: 38%; Volta: 46.2% Northern: 61.3% Ashanti: 37.2% Brong Ahafo: 56% Upper East: 73.8% Upper West: 90.6% Central: 41.9% Greater Accra: 47.1% Western: 14%	National: 80% Eastern: 80%; Volta: 80% Northern: 80% Ashanti: 80% Brong Ahafo: 80% Upper East: 80% Upper West: 80% Central: 80% Greater Accra: 80% Western: 80%	Eastern: 40%	
3	Proportion of population of all ages who slept under an ITN the previous night	National 28.6% Eastern: 50.6% <sup>m</sup> /46.8% <sup>e</sup> Volta: 65.6% Northern: 26.9%	National 85% Eastern: 85%; Volta: 85% Northern: 85%	National 38.8% Eastern: 40.7%; Volta: 35% Northern: 41%	National 85% Eastern: 85%; Volta: 85% Northern: 85%	Eastern: 38.2%	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
3.1	Proportion of population of all ages who slept under an ITN the previous night (Male)	National: 26.9%	National: 85%	National: 34.6%	National: 85%	Eastern: 73.1%	DHS Report did not break down population into male and female
3.2	Proportion of population of all ages who slept under an ITN the previous night (Female)	National: 30.3%	National: 85%	National: 42.8%	National: 85%		
3.3	Proportion of population of all ages who slept under an ITN the previous night (Urban)	National: 19%	National: 83%	National: 34.7%	National: 85%	Eastern: 34%	
3.4	Proportion of population of all ages who slept under an ITN the previous night (Rural)	National: 33.1%	National: 85%	National 43.1%	National: 85%	Eastern: 41.4%	
3.5	Proportion of population of all ages who slept under an ITN the previous night (Lowest Wealth Quintile)	National: 32.8%	National: 85%	National 40.2%	National: 85%	Eastern: 38.5%	
3.6	Proportion of population of all ages who slept under an ITN the previous night	National: 33.3%	National: 85%	National 41.3%	National: 85%	Eastern: 39.2%	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
	(Second Wealth Quintile)						
3.7	Proportion of population of all ages who slept under an ITN the previous night ( Middle Wealth Quintile)	National: 26.1%	National: 85%	National 36.8%	National: 85%	Eastern: 39.1%	
3.8	Proportion of population of all ages who slept under an ITN the previous night (Fourth Wealth Quintile)	National: 20.9%	National: 85%	National 39.2%	National: 85%	Eastern: 37.4%	
3.9	Proportion of population of all ages who slept under an ITN the previous night (Highest Wealth Quintile)	National: 14.5%	National: 85%	National 36%	National: 85%	Eastern: 37%	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
4	Proportion of children under five years old who slept under an ITN the previous night	National: 39.0% Eastern: 60.2% <sup>m</sup> /49.1% <sup>e</sup> ; Volta: 70.7% Northern:41.8% Ashanti: 31.2% Brong Ahafo: 41.3% Upper East: 45% Upper West: 46.9% Central: 27.7% Greater Accra: 22.1% Western: 32.7%	National: 85% Eastern: 85% Volta: 85% Northern: 85% Ashanti: 85% Brong Ahafo: 85% Upper East: 85% Upper West: 85% Central: 85% Greater Accra: 85% Western: 85%	National 45.6%	National: 85% Eastern: 85% Volta: 85% Northern: 85% Ashanti: 85% Brong Ahafo: 85% Upper East: 85% Upper West: 85% Central: 85% Greater Accra: 85% Western: 85%	Eastern: 45.4%	
4.1	Proportion of children under five years old who slept under an ITN the previous night (Male)	National: 39.3%	National: 85%	National 40.9%	National: 85%	Eastern:	
4.2	Proportion of children under five years old who slept under an ITN the previous night (Female)	National: 38.8%	National: 85%	National 49.4%	National: 85%	Eastern:	
4.3	Proportion of children under five years old who slept under an ITN the previous night (Urban)	National: 30.1%	National: 85%	National: 45.4%	National: 85%	Eastern: 44.4%	
4.4	Proportion of children under five years old who slept under an ITN the	National: 45.9%	National: 85%	National: 45.7%	National: 85%	Eastern: 46%	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
	previous night (Rural)						
4.5	Proportion of children under five years old who slept under an ITN the previous night (Lowest Wealth Quintile)	National: 49.7%	National: 85%	National: 43.5%	National: 85%	Eastern: 46.6%	
4.6	Proportion of children under five years old who slept under an ITN the previous night (Second Wealth Quintile)	National: 45.5%	National: 85%	National: 38.3%	National: 85%	Eastern: 43.1%	
4.7	Proportion of children under five years old who slept under an ITN the previous night (Middle Wealth Quintile)	National: 41.0%	National: 85%	National: 48.5%	National: 85%	Eastern: 48.3%	
4.8	Proportion of children under five years old who slept under an ITN the previous night (Fourth Wealth Quintile)	National: 31.0%	National: 85%	National: 56.5%	National: 85%	Eastern: 44.7%	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
4.9	Proportion of children under five years old who slept under an ITN the previous night (Highest Wealth Quintile)	National: 23.6%	National: 85%	National: 30%	National: 85%	Eastern: 44.1%	
5	Proportion of pregnant women who slept under an ITN the previous night.	National: 32.6% Eastern: 62.3% <sup>m</sup> /50% <sup>e</sup> ; Volta: 57.8% Northern: 37.9% Ashanti: 21.3% Brong Ahafo: 36.1% Ahafo: 50.5% Upper East: 41.2% Central: 29.3% Greater Accra: 11.8% Western: 21.5%	National: 85% Eastern: 85% Volta: 85% Northern: 85% Ashanti: 85% Brong Ahafo: 85% Upper East: 85% Upper West: 85% Central: 85% Greater Accra: 85% Western: 85%	National: 54% Eastern: ** Volta: ** Northern: 50% Ashanti: 81% Brong Ahafo: 75% Upper East: 33% Upper West: **% Central: **% Greater Accra: 33% Western: 56%	National: 85% Eastern: 85% Volta: 85% Northern: 85% Ashanti: 85% Brong Ahafo: 85% Upper East: 85% Upper West: 85% Central: 85% Greater Accra: 85% Western: 85%	Eastern: 38.9%	Data for year 2 collected in the dry season (after the rains) where net use is generally low.
5.1	Proportion of pregnant women who slept under an ITN the previous night. (Urban)	National: 18.8%	National: 85%	National 46%	National: 85%	Eastern: 31.3%	
5.2	Proportion of pregnant women who slept under an ITN the previous night.(Rural)	National: 43.6%	National: 85%	National 66%	National: 85%	Eastern: 45%	
5.3	Proportion of pregnant women who slept under an ITN the previous night.(Lowest)	National: 51.4%	National: 85%	National: 87.5%	National: 85%	Eastern: 40%	Survey was conducted at the end of the raining season where net use is generally low.

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
	Wealth Quintile)						
5.4	Proportion of pregnant women who slept under an ITN the previous night.(Second Wealth Quintile)	National: 49.7%	National: 85%	National 35.3%	National: 85%	Eastern: 50%	
5.5	Proportion of pregnant women who slept under an ITN the previous night.(Middle Wealth Quintile)	National: 31.9%	National: 85%	National 61.9%	National: 85%	Eastern: 42.9%	
5.6	Proportion of pregnant women who slept under an ITN the previous night.(Fourth Wealth Quintile)	National: 12.9%	National: 85%	National 30.8%	National: 85%	Eastern: 33.3%	
5.7	Proportion of pregnant women who slept under an ITN the previous night. (Highest Wealth Quintile)	National: 15.8%	National: 80%	National 61.9%	National: 85%	Eastern: - 0	No figure was provided in end line survey
6	Number of ITNs distributed nationally with USG funds	0	1,350,000	1,427,169	3,623,724	1,703,169	The target took into consideration distribution through 3 primary school classes (2, 4, 6) nationwide and health facility distribution. There were delays in the arrival of Nets for the commencement of health facility distribution in 6

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
							Regions. There were also stockouts in 4 Regions due to the late arrival of Nets. For schools, distribution was done through 2 Classes in all 10 Regions. Eastern Region had a top up for two additional classes (Class 4 and 5) This was necessitated by the fact that in year 1, Eastern Region was not served by NetWorks.
6.1	Number of insecticide treated nets (ITNs) purchased with USG funds that were distributed <b>through health facilities</b>	0	150,000	189,969	1,734,124	773,182	The unavailability of Nets in the country and the delay in the arrival of procured nets affected continuous distribution activities through health facilities. Data is for the period 1 October 2013 to 30 September 2014. Data Retrieved on from Ghana health Service District Health Information Management System (DHIMS 2) database
6.2	Number of insecticide treated nets (ITNs) purchased with USG funds that were distributed <b>through health facilities (ANC)</b>	0	tbd	81,009	867,062	294,322	Data Retrieved from the Ghana Health Service District Health Information Management System (DHIMS2 Software for the Period October 1 2013 to September 30 2014
6.3	Number of insecticide treated nets (ITNs) purchased with USG funds that were distributed <b>through health</b>	0	tbd	108,960	867,062	478,860	Data Retrieved from the Ghana Health Service District Health Information Management System (DHIMS2 Software for the Period October 1 2013 to September 30 2014

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
<b>facilities (CWC)</b>							
6.4	Number of insecticide treated nets (ITNs) purchased with USG funds that were distributed <b>through Schools</b>	0	1,200,000	1,237,200	865,876	1,510,100	1,374,100 through school distribution -National (class 2 &6 March - April 2014) 136,000 through Eastern Region schools top up (class 4 &5- November-December 2013). The Central Medical Stores does not disaggregate nets by the purchaser of nets. All Nets are in a pool and used for distribution
6.5	Number of insecticide treated nets (ITNs) purchased by other partners that were distributed with USG funds	0	1,000,000	NA	1,023,724	-	The Central Medical Stores does not disaggregate nets by the purchaser of nets. All Nets are in a pool and used for distribution
7	Number of persons trained in ITN distribution, and/or promotion	0	25,000	23,273	2,684	4,207	Onsite facility based health worker training Upper West - 511, Brong Ahafo 1237 Upper East 353 Ashanti 1926 trained
7.1	Number of persons trained in ITN distribution, and/or promotion (Male)	0	11,250	16,358	389	880	Onsite facility based health worker training Upper West - 187 , Brong Ahafo 279 Upper East 126 Ashanti 288 trained
7.2	Number of persons trained in ITN distribution, and/or promotion (Female)	0	13,750	6,915	953	3,147	Onsite facility based health worker training Upper West - 324 , Brong Ahafo 958 Upper East 227 Ashanti 1638 trained
8	Number of schools implementing	0	18,000	18,846	21,000	19,175	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
	continuous distribution						
9	Number of pupils receiving ITN through schools	0	1,203,589	1,237,200	1,889,600	1,510,100	Although target took into consideration distribution through 3 streams Class 2, 4 and 6 nets available were enough for only 2 streams. Class 2 and 6 were used. Figure constitutes total nets distributed. 192 out of 216 districts provided information of breakdown by male and female hence breakdown will not tally with total figures.
9.1	Number of pupils receiving ITN through schools (Male)	0	648,000	643,344	969,365	636,139	
9.2	Number of pupils receiving ITN through schools (Female)	0	555,589	593,856	920,235	601,170	
<b>Community Mobilization</b>							
10	Number of Community Radio Stations contracted by NetWorks to broadcast Malaria Prevention Messages	0	25	28	33	22	5 community radio stations - Southern Zone 9 National Stations 8 community Radio Stations in the Northern Zone- CRS
11	Number of radio spots or programs produced	0	9	19	9	14	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
12	Number of radio spots or programs broadcast	0	10,000	15217	12,000	6772	3807 spots by 5 community radio stations 565 Spots by 9 National Stations 2400 Spots aired by 8 community Radio Stations in the Northern Zone- CRS
13	Number of television spots or programs produced	0	2	2	2	2	
14	Number of television spots or programs Broadcast	0			90	103	Yr 1 results not available
15	% of household respondents who heard or saw a malaria message by specific message (ITN)	National ITN: 23.2% Ashanti ITN;20%; Eastern ITN: 18.7% Northern ITN; 19.2%	National ITN: 80% Ashanti ITN; 80%; Eastern ITN: 80% Northern ITN; 80%	National: 78% Eastern: 94%; Volta: 91% Northern: 55.7% Ashanti: 73% Brong Ahafo: 78% Upper East: 91% Upper West: 94% Central: 47% Greater Accra: 91% Western: 79%	National ITN: 85% Ashanti ITN: 85%; Eastern ITN: 85% Northern ITN; 85%	Eastern ITN: 84.9%	
16	% of household respondents who heard or saw a malaria message by source	<b>Eastern TV:</b> 28.2% Radio: 15.3% <b>Volta TV:</b> 19.5% Radio: 22.6% <b>Northern TV:</b> 33.1% Radio: 15.2%	<b>Eastern TV:</b> 60% Radio: 60% <b>Volta TV:</b> 60% Radio: 60% <b>Northern TV:</b> 60% Radio: 60%	<b>Eastern TV:</b> 24.8% Radio: 45% <b>Volta TV:</b> 32.9% Radio: 23.7% <b>Northern TV:</b> 34.8% Radio: 25.8%	<b>Eastern TV:</b> 80% Radio: 80% <b>Volta TV:</b> 80% Radio: 80% <b>Northern TV:</b> 80% Radio: 80%	<b>Eastern TV:</b> 28.8% Radio: 53%	DHS results for other districts not available during reporting period

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
17	Number of people trained in Community Mobilization for malaria prevention	0	8,000	5139	4,184	16,096	Training of school based teachers in Drama, Malaria flip chart and community outreach activities in 7 Regions
17.1	Number of people trained in Community mobilization for malaria prevention (Male)	0	4,800	2171	2,578	9,530	Training of school based teachers in Drama, Malaria flip chart and community outreach activities in 7 Regions
17.2	Number of people trained in community mobilization for malaria prevention (Female)	0	3,200	2968	1,606	6,566	Training of school based teachers in Drama, Malaria flip chart and community outreach activities in 7 Regions
18	# of Community Based Opinion Leaders Oriented on LLINs for malaria prevention and control	0	1,500	636	1,500	6,190	46 Senior Level Religious Leaders were trained and have oriented 6190 Opinion Leaders and members in the Northern Zone
18.1	# of Community Based Opinion Leaders Oriented on LLINs for malaria prevention and control (Male)	0	900	394	900	4024	Estimated
18.2	# of Community Based Opinion Leaders Oriented on LLINs for malaria prevention and control (Female)	0	600	242	600	2,166	Estimated

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
19	# of organized groups engaged in malaria SM activities	0	150	131	150	131	Old groups for year1 were maintained by CRS
<b>TRAINING</b>							
20	Number of people (medical personnel, health workers, community workers, educational workers etc.) trained with USG funds in malaria treatment or prevention	0	26,500	23,909	4,184	20,303	Shift from classroom training to on-site trainings provided an opportunity for more people to be trained. Additional people were trained on drama scripts for school and community mobilization.
20.1	Number of people (medical personnel, health workers, community workers, etc.) trained with USG funds in malaria treatment or prevention <b>(Male)</b>	0	12,150	16,752	1,213	10,410	
20.2	Number of people (medical personnel, health workers, community workers, etc.) trained with USG funds in malaria treatment or prevention <b>(Female)</b>	0	14,350	7,157	2,971	9,713	

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
20.3	Number of health facility workers trained	0	6,500	2524	2,684	4207	
20.4	Number of community-level workers trained***	0	20,000	21385	1,500	16,096	
<b>New LLIN Indicators for 2014</b>							
21	Percentage of ANC registrants reported as being supplied with LLINs	Eastern: 42.2%; Volta: 29.3% Western: 28.2% Central: 8.95%	NA		National: 80% Eastern: 80%; Volta: 80% Northern: 80% Ashanti: 80% Brong Ahafo: 80% Upper East: 80% Upper Volta: 80% Central: 80% Greater Accra: 80% Western: 80%	National: 32.7% Eastern: 56.3%; Volta: 37.4% Northern: 24.9% Ashanti: 45.1% Brong Ahafo: 38.9% Upper East: 44.0% Upper West: 53.6% Central: 27.1% Greater Accra: 7.1% Western: 28.1%	Data for the month of July 2013 used as a baseline. Baseline Data retrieved from DHIMS on August 27 2013. Data (Results) Retrieved from DHIMS on 27 April 2014. Central, Western Eastern and Volta were affected by stock out of nets between October 2013 and January 2014.

Ind #	Indicator	Baseline	Targets Year 1	Results	Targets Year 2	Results	Comments on Year 2 Results
22	Percentage of children receiving measles 2 dose reported as being supplied with LLIN	Eastern: 79.9%; Volta: 82% Western: 50.3% Central: 30.77%	NA		National: 80% Eastern: 80%; Volta: 80% Northern: 80% Ashanti: 80% Brong Ahafo: 80% Upper East: 80% Upper West: 80% Central: 80% Greater Accra: 80% Western: 80%	National: 57.8% Eastern: 88.2%; Volta: 69.8% Northern: 38.9% Ashanti: 66.5% Brong Ahafo: 52.8% Upper East: 69% Upper West: 68.8% Central: 60.8% Greater Accra: 22.6% Western: 62.1%	Data for the Month of July 2013 used as a baseline. Baseline Data retrieved from DHIMS on August 27 2013.

All baseline data sources for outcome indicators are taken from MICS 2011 except Eastern Region Where <sup>m</sup> = MICS and <sup>e</sup> = Post Campaign Evaluation

\*\*\*Persons from Educational Institutions are included in the community level trainees

tbd = to be determined.

